



45

PATENT APPLICATION 601-1-095N  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : Roth and Bupp EXAMINER: Not yet assigned  
SERIAL NO. : 09/881,572, filed June 14, 2001 ART UNIT: 1645  
FOR: TARGETING VIRAL VECTORS TO SPECIFIC CELLS

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to as being transmitted therewith) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231 on February 20, 2002.

Catherine Roseman Smith  
(Name of Representative)

C R Smith Feb. 20, 2002  
(Signature and Date)

**STATEMENT UNDER 37 CFR §1.821 and §1.825**

Assistant Commissioner for Patents  
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Washington, D.C. 20231

Sir:

I hereby certify that:

- X The contents of the paper Sequence Listing and computer readable Sequence Listing submitted herewith are the same. (37 CFR §1.821(f)).
- X The contents of the paper Sequence Listing and computer readable Sequence Listing submitted herewith are the same. No new matter is included. (37 CFR §1.821(f) & (g)).

Respectfully submitted,

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February 20, 2002



175

# SEQUENCE LISTING

<110> Roth, Monica;  
Bupp, Keith;  
University of Medicine and Dentistry of New Jersey

<120> Targeting Viral Vectors to Specific Cells

<130> 601-1-095

<140> 09/881,572

<141> 2001-06-14

<150> 60/212,239

<151> 2000-06-16

<160> 27

<170> PatentIn version 3.0

<210> 1

<211> 65

<212> PRT

<213> moloney murine leukemia virus

<400> 1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Gly | Pro | Ser | Tyr | Trp | Gly | Leu | Glu | Tyr | Gln | Ser | Pro | Phe | Ser | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Pro | Gly | Pro | Pro | Cys | Cys | Ser | Gly | Gly | Ser | Ser | Pro | Gly | Cys | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Asp | Cys | Glu | Glu | Pro | Leu | Thr | Ser | Leu | Thr | Pro | Arg | Cys | Asn | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Trp | Asn | Arg | Leu | Lys | Leu | Asp | Gln | Thr | Thr | His | Lys | Ser | Asn | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 65  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 2

<211> 11

<212> PRT

<213> moloney murine leukemia virus

<400> 2

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asp | Gln | Ala | Val | Gln | Val | Cys | Lys | Asp | Asn |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 3

<211> 9

<212> PRT

<213> moloney murine leukemia virus

<400> 3

|     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | His | Arg | Pro | Arg | Glu | Ser | Lys | Ser |
| 1   |     |     |     | 5   |     |     |     |     |

<210> 4

<211> 29  
 <212> PRT  
 <213> amphotropic murine leukemia virus

<400> 4

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Glu | Trp | Asp | Pro | Ser | Asp | Gln | Glu | Pro | Tyr | Val | Gly | Tyr | Gly | Cys |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Lys | Tyr | Pro | Ala | Gly | Arg | Gln | Arg | Thr | Arg | Thr | Phe | Asp |     |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     |     |     |

<210> 5  
 <211> 30  
 <212> PRT  
 <213> amphotropic murine leukemia virus

<400> 5

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Trp | Asp | Thr | Gly | Cys | Ser | Lys | Val | Ala | Cys | Gly | Pro | Cys | Tyr | Asp |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Ser | Lys | Val | Ser | Asn | Ser | Phe | Gln | Gly | Ala | Thr | Arg | Gly |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

<210> 6  
 <211> 6  
 <212> PRT  
 <213> amphotropic murine leukemia virus

<400> 6

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| His | Thr | Val | Lys | Ser | Gly |
| 1   |     |     |     | 5   |     |

<210> 7  
 <211> 39  
 <212> PRT  
 <213> Feline leukemia virus

<400> 7

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Thr | Trp | Glu | Pro | Ile | Val | Leu | Asn | Pro | Thr | Asn | Val | Lys | His | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Ala | Arg | Tyr | Ser | Ser | Ser | Lys | Tyr | Gly | Cys | Lys | Thr | Thr | Asp | Arg | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Gln | Gln | Gln | Thr | Tyr | Pro |     |     |     |     |     |     |     |     |     |
|     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 8  
 <211> 6  
 <212> PRT  
 <213> Feline Leukemia Virus

<400> 8

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| Gln | Asp | Asn | Ser | Cys | Glu |
| 1   |     |     |     | 5   |     |

<210> 9  
 <211> 11

<212> PRT  
<213> Feline Leukemia Virus

<400> 9

His Ala Pro Ser Leu Gly Pro Lys Gly Thr His  
1 5 10

<210> 10  
<211> 21  
<212> PRT  
<213> Rat Leukemia Virus

<400> 10

Asp Ser Trp Glu His Thr Glu Arg Thr Pro His Asn Ser Tyr Pro Pro  
1 5 10 15  
Cys Arg His Ser Asp  
20

<210> 11  
<211> 6  
<212> PRT  
<213> Rat Leukemia Virus

<400> 11

Gly Lys Arg Thr Arg Glu  
1 5

<210> 12  
<211> 24  
<212> PRT  
<213> Feline Leukemia Virus

<400> 12

Trp Glu Pro Ile Val Leu Asp Pro Thr Asn Val Lys His Gly Ala Arg  
1 5 10 15  
Tyr Pro Ser Ser Lys Tyr Gly Cys  
20

<210> 13  
<211> 21  
<212> PRT  
<213> Feline Leukemia Virus

<400> 13

Trp Glu Pro Met Ala Pro Asp Pro Arg Ser Trp Ala Arg Tyr Ser Ser  
1 5 10 15  
Ser Ile His Gly Cys  
20

<210> 14  
<211> 21  
<212> PRT  
<213> Artificial

<220>  
<223> Consensus Sequence

<220>  
<221> Variant  
<222> (10) through (14)  
<223> Xaa is any amino acid.

<220>  
<221> Variant  
<222> (4) through (8)  
<223> Xaa is any amino acid.

<400> 14

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Glu | Pro | Xaa | Xaa | Xaa | Xaa | Xaa | Arg | Xaa | Xaa | Xaa | Xaa | Xaa | Ser | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Lys | Tyr | Gly | Cys |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     | 20  |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 15  
<211> 14  
<212> PRT  
<213> Amphotropic Murine Leukemia Virus

<400> 15

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Glu | Trp | Asp | Pro | Ser | Asp | Gln | Glu | Pro | Tyr | Val | Gly | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     |

<210> 16  
<211> 13  
<212> PRT  
<213> Amphotropic Murine Leukemia Virus

<400> 16

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Trp | Asp | Thr | Gly | Cys | Ser | Lys | Val | Ala | Cys | Gly | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |

<210> 17  
<211> 29  
<212> PRT  
<213> Amphotropic Murine Leukemia Virus

<400> 17

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gly | Asp | Thr | Trp | Glu | Pro | Ile | Val | Leu | Asn | Pro | Thr | Asn | Val | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Gly | Ala | Arg | Tyr | Ser | Ser | Ser | Lys | Tyr | Gly | Cys | Lys |     |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     |     |     |

<210> 18  
<211> 26  
<212> PRT  
<213> Feline Leukemia Virus

<400> 18

Val Gly Thr Asp Trp Glu Pro Met Ala Pro Asp Pro Arg Ser Trp Ala  
 1 5 10 15  
 Arg Tyr Ser Ser Ser Thr His Gly Cys Lys  
 20 25

<210> 19  
 <211> 19  
 <212> PRT  
 <213> Feline Leukemia Virus

<400> 19

Val Gly Glu Glu Trp Asp Pro Ser Asp Gln Glu Pro Tyr Val Gly Tyr  
 1 5 10 15  
 Gly Cys Lys

<210> 20  
 <211> 72  
 <212> DNA  
 <213> Artificial

<220>  
 <223> example of variable insertion site

<220>  
 <223> n is any nucleotide.

<220>  
 <221> Variant  
 <222> (22) through (36)  
 <223> n is any nucleotide.

<220>  
 <221> Variant  
 <222> (40) through (54)  
 <223> n is any nucleotide.

<400> 20  
 gtgggagaca cctgggaacc tnnnnnnnnnn nnnnnnagan nnnnnnnnnnn nnnntcctcc  
 60  
 tcaaaatatg ga  
 72

<210> 21  
 <211> 17  
 <212> DNA  
 <213> Feline Leukemia Virus

<400> 21  
 ctctgtggac ccttgga  
 17

<210> 22  
 <211> 22  
 <212> DNA  
 <213> Feline Leukemia Virus

<400> 22  
aggaggagtt ttatacctac at  
22

<210> 23  
<211> 25  
<212> PRT  
<213> Homo sapiens

<220>  
<221> Variant  
<222> (4) through (6)  
<223> Xaa is any amino acid.

<220>  
<221> Variant  
<222> (17 through (19)  
<223> Xaa is any amino acid.

<400> 23

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Glu | Pro | Xaa | Xaa | Xaa | Ser | Pro | Tyr | Ser | Ser | Asp | Thr | Thr | Pro | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Xaa | Xaa | Xaa | Ser | Ser | Lys | Tyr | Gly | Cys |     |     |     |     |     |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     |     |     |

<210> 24  
<211> 25  
<212> PRT  
<213> Amphotropic Murine Leukemia Virus

<400> 24

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Glu | Trp | Asp | Pro | Ser | Asp | Gln | Glu | Pro | Tyr | Val | Gly | Tyr | Gly | Cys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Lys | Tyr | Pro | Ala | Gly | Arg | Gln | Arg | Thr |     |     |     |     |     |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     |     |     |

<210> 25  
<211> 29  
<212> PRT  
<213> Amphotropic Murine Leukemia Virus

<400> 25

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Trp | Asp | Thr | Gly | Cys | Ser | Lys | Val | Ala | Cys | Gly | Pro | Cys | Tyr | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Ser | Lys | Val | Ser | Asn | Ser | Phe | Gln | Gly | Ala | Thr | Arg |     |     |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     |     |     |

<210> 26  
<211> 10  
<212> PRT  
<213> Homo sapiens

<400> 26

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Ala  
1 5 10

<210> 27

<211> 23

<212> PRT

<213> Moloney Mink Cell Focus-Inducing Virus

<400> 27

Asp Leu Ile Gly Asp Asp Trp Asp Glu Thr Gly Leu Gly Cys Arg Thr  
1 5 10 15

Pro Gly Gly Arg Lys Arg Ala  
20